

WHAT IS CLAIMED IS:

1. A reservoir for storing hydrogen, comprising:
a housing;

5 a molded body accommodated in the housing, wherein the
molded body is formed by compressing a hydrogenstorage
material powder, the molded body causes exothermic reaction
when absorbing the hydrogen and causes endothermic reaction
when releasing the hydrogen, and the molded body has a first
10 side and a second side opposite to the first side;

15 a heat medium passage formed in the interior of the
housing to face the first side of the molded body, wherein
heat is transmitted from the molded body to a heat medium in
the heat medium passage when the molded body absorbs the
hydrogen, and heat is transmitted from the heat medium in the
heat medium passage to the molded body when the molded body
releases the hydrogen; and

20 a hydrogen passage formed in the interior of the housing
to face the second side of the molded body.

25 2. The reservoir as set forth in claim 1, wherein the heat
medium passage includes a duct that has a hole in which the
heat medium flows, and the duct contacts the first side of
the molded body.

30 3. The reservoir as set forth in claim 2, wherein the duct
is flat, and the hole is one of a plurality of holes that
extend parallel with each other in the duct.

35 4. The reservoir as set forth in claim 1, wherein the
molded body contains a highly heat conductive material.

5. The reservoir as set forth in claim 4, wherein the
highly heat conductive material is copper.

6. The reservoir as set forth in claim 1, wherein the molded body has a plate-like shape, and the first and second sides of the molded body are flat.

5 7. The reservoir as set forth in claim 6, wherein the heat medium passage and the hydrogen passage are flat.

8. The reservoir as set forth in claim 1, further comprising a filter located in the hydrogen passage.

10 9. The reservoir as set forth in claim 1, further comprising a main passage extending along the molded body and connected to the hydrogen passage, wherein the hydrogen is supplied from the exterior of the housing to the hydrogen passage through the main passage and is discharged from the hydrogen passage to the exterior of the housing through the main passage.

10. A reservoir for storing hydrogen, comprising:
a housing;
a plurality of storage units stacked in the interior of the housing, wherein each storage unit includes:
a pair of plate-like molded bodies formed by compressing a hydrogenstorage material powder, wherein each molded body causes exothermic reaction when absorbing the hydrogen and causes endothermic reaction when releasing the hydrogen, the molded body includes a first flat side and a second flat side opposite to the first side, and the molded bodies are located with respect to each other such that the first sides face each other; and
a heat exchanger located between the molded bodies, wherein the heat exchanger includes a flat duct in which a heat medium flows, the duct contacts the first side of each molded body, heat is transmitted from the molded

5 bodies to the heat medium in the duct when the molded bodies absorb the hydrogen, and heat is transmitted from the heat medium in the duct to the molded bodies when the molded bodies release the hydrogen; and

10 5 a plurality of flat hydrogen passages formed in the interior of the housing to face the second sides of the molded bodies.

11. The reservoir as set forth in claim 10, wherein each 10 10 molded body contains copper.

12. The reservoir as set forth in claim 10, further comprising a filter located in each hydrogen passage.

13. The reservoir as set forth in claim 10, wherein: 15 15 each molded body includes a chamfer; a main passage is formed between each chamfer and a wall of the housing and is connected to the associated hydrogen passage; and
the hydrogen is supplied from the exterior of the housing to the hydrogen passages through the associated main passages and is discharged from the hydrogen passages to the exterior of the housing through the associated main passages.

25 14. The reservoir as set forth in claim 10, wherein the duct of each storage unit includes:

30 20 an upstream section and a downstream section, which extend parallel with each other; and
a connecting section, which connects the upstream

35 25 section to the downstream section to form a substantially U-shaped heat medium passage in the duct.

15. The reservoir as set forth in claim 14, wherein:
the housing includes a main body for accommodating the 35 30 storage units and a header attached to the main body;

the header defines an upstream chamber for receiving the heat medium from the exterior and a downstream chamber for discharging the heat medium to the exterior; and

the upstream section is connected to the upstream chamber while the downstream section is connected to the downstream chamber.